

Application No: 10/556,121
Amendment A
Reply to Office Action Dated 01/08/2008

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Attorney Docket No: 3926.221

IN THE CLAIMS:

The following listing of claims replaces any earlier listing:

1-14. (canceled).

15. (currently amended) A balancing shaft for an internal combustion engine, produced by the method of claim 21, which the balancing shaft consists consisting of a tubular hollow body and ~~has having~~ a balancing weight ~~and also functional elements~~ arranged on the hollow body, the balancing weight being arranged on ~~[[the]]~~ an outer circumference of the hollow body and being connected to the latter in an interference fit, wherein

the hollow body (2) is plastically expanded only at ~~[[the]]~~ a location of its connection to the balancing weight (5) by an internal pressure inside the hollow body, and

the balancing weight (5) is expanded at this location due to a contact with the hollow body and then elastically springs back after the internal pressure is relieved ~~with elastic spring-back~~.

16. (previously presented) The balancing shaft as claimed in claim 15, wherein the balancing weight (5) is integrally formed on a hub (12) which locally encloses and is secured to the hollow body (2).

17. (currently amended) The balancing shaft as claimed in claim 15, ~~wherein the further comprising~~ functional elements ~~are~~ arranged as individual components on the hollow body (2) and ~~are~~ connected to the hollow body (2) in an interference fit.

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18. (currently amended) The balancing shaft as claimed in claim ~~[[15]]~~ 17, wherein the balancing weight (5) and/or the functional elements are additionally connected to the hollow body (2) in a positive-locking manner.

19. (currently amended) The balancing shaft as claimed in claim 15, wherein the hollow body (2) is connected at one end in one piece with a connecting component (10) for drive components, the connecting ~~part~~ component (10) closing the hollow body (2).

20. (previously presented) The balancing shaft as claimed in claim 19, wherein said drive components are selected from chain wheels and centrifuges.

21. (currently amended) A method of producing a balancing shaft~~[[,]]~~ having a balancing weight ~~and also functional elements being~~ fastened to a hollow tubular body ~~of the balancing shaft~~, the balancing weight being positioned on and fastened to ~~[[the]]~~ an outer circumference of the hollow tubular body with formation of an interference fit, comprising:

introducing ~~[[a]]~~ the balancing weight (5) ~~and/or of the functional element~~ onto the hollow body (2),

partially expanding the hollow body (2) by means of ~~fluidic~~ an internal high pressure inside the hollow body (2) locally only at ~~[[the]]~~ a location of the introduced balancing weight (5) ~~and/or of the functional element to form the interference fit while,~~

expanding the balancing weight (5) due to a contact of the balancing weight (5) with the hollow body (2), and ~~and/or the functional elements so as to spring~~

relieving the internal high pressure so that the balancing weight (5) springs back elastically.

22. (previously presented) The method as claimed in claim 21, wherein, by means of a hub (12) on which the balancing weight (5) is integrally formed, said balancing weight (5) is pushed onto the hollow body (2) and is then fastened.

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23. (currently amended) The method as claimed in claim [[21]] 22, further comprising ~~wherein the pushing~~ functional elements, with a bore (11), ~~are pushed~~ as individual components onto the hollow body (2) and ~~are connected~~ connecting to the latter, with an interference fit being formed.
24. (currently amended) The method as claimed in claim [[21]] 23, wherein [[the]] a wall of [[the]] a through-opening (13) of the hub (12) and/or [[the]] a wall of [[the]] a bore (11) with which the balancing weight (5) and/or the functional elements are pushed onto the hollow body (2) are/is designed to be rotationally asymmetric, and in that, by means of fluidic internal high pressure, the hollow body (2) is connected to the balancing weight (5) and/or the functional elements in a positive-locking manner by at least partial contact with rotationally asymmetric surfaces of the wall of the through-opening (13) of the hub (12) and/or of the wall of the bore (11).
25. (currently amended) The method as claimed in claim 21, wherein at least one of the open ends (9) of the hollow body (2) is friction welded to a connecting component (10) closing the end and intended for drive components.
26. (previously presented) The method as claimed in claim 25, wherein said drive components are selected from chain wheels and centrifuges.
27. (new) The balancing shaft as claimed in claim 18, wherein the positive-locking is achieved by an asymmetric structure on an inner wall of a hub of the balancing weight and/or a bore of the functional elements.
28. (new) The balancing shaft as claimed in claim 18, wherein the asymmetric structure includes an oval and/or hollows or longitudinal grooves formed on the wall.

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29. (new) The method as claimed in claim 21, wherein the internal high pressure is applied by broaching.
30. (new) The method as claimed in claim 21, wherein the internal high pressure is applied by fluidic internal high pressure.
31. (new) The method as claimed in claim 21, wherein the partial expansion of the hollow body (2) by the internal high pressure locally only at the location of the balancing weight is achieved by an internal high pressure forming die that has a negative contour of the balancing shaft outside the location of the balancing weight.
32. (new) The method as claimed in claim 21, wherein the partial expansion of the hollow body (2) by the internal high pressure locally only at the location of the balancing weight is achieved by movable plungers to be inserted into the hollow body.
33. (new) The method as claimed in claim 21, wherein the partial expansion of the hollow body (2) by the internal high pressure locally only at the location of the balancing weight is achieved by an expansion lance to be inserted into the hollow body.

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